INDEX.

A

Acetate of Copper, its optical structure, 3.—chemical composition, 4.
Achafalaya River, account of the drift-wood accumulated in the, 402.
Aërial shadows seen on the summit of Benlomond, 218.
Africa, account of Mr Campbell's journey in, 403.—on the climate of the south of, 279.
Allamand, M. on electrical phenomena observed in Switzerland, 391.
Alps, on the structure of the, 224.
Antelope, 269.
Aphaca, 368.
Apophyllite, on the optical properties of, 213, 334.—of Faroe and Uton, analysed by M. Berzelius, 3.
Apparatus, account of an improved one for restoring the action of the lungs, 53.—electro-magnetic of Colonel Offerhaus, 352.
Arctic Regions, rewards offered for discoveries in the, 403.
Arragonite, on the optical structure of, 2.—on different kinds of, 211.
Arsenic acid, 350.
Arts, school of, in Edinburgh, 234.
Asclepiadeæ, Mr Brown's Essay on the, translated, 230.
Astronomical observations made on the Continent, 71.
Atlantic Ocean, on the temperature of the, 283.
Atush Kudda, or fire-temples of the Guebres, described, 21.
Auroræ boreales seen in the Arctic Regions, 202.
Ava, account of a map of the country south from, 75.

B

Badku, naphtha springs at, 22.
Barlow, Mr, on the effect of magnetism on chronometers, 220, 383.—his essay on magnetic attractions analysed, 261.
Bats in Congo, 274.
Bee, account of the singular treatment of a queen, 65.
Benlomond, on aërial shadows seen on its summit, 218.
Berzelius, M. on the composition of the apophyllites, 3.—on nitrate of strontian, 4.—on sulphate of potash and iron, 5.
Birds, list of those found in the district of Harris, 257.
Block-tin pipes, on the substitution of, in place of leaden ones, 120.
Boa constrictor, 274.
Bockman on the intensity of magnetism produced by electricity, 392.
Boracite, on a new primitive form detected in, 217.
Brewster, Dr, on the connexion between the optical structure and the composition of minerals, 1.—on the optical structure of arragonite, 2.—on the murio-sulphate of magnesia and iron, 3.—on the apophyllites, ib.—on acetate of copper, 4.—on nitrate of strontian, ib.—on sulphate of potash, 5.—on talc and mica, ib.—on sulphate of nickel, 6, 208.—on nitrate of lead, 7.—on the mesotypes, ib.—on the poles of maximum cold, 199.—on the optical properties of euclase, 217.—on a new primitive form in boracite, ib.—on the distribution of the colouring matter in topaz, ib.—on the structure of leucite, 218.—notice of his new system of mineralogy, 230.
Bridges of suspension, history of, 237.—account of the one over the Tees, 238.—in America, 239.—one proposed at Runcorn, 240.

—at the Straits of Menai, ib.—at Galashiels, 241.—at Kingsmeadows, the Seat of Sir John Hay, Bart. ib.—at Thirlestane Castle, the seat of the Hon. Captain Napier, 243.—at Dryburgh Abbey, the seat of the Earl of Buchan, ib.—Union chain-bridge over the Tweed, 247.—new one proposed, 252.

Buchanan, Dr F. on water-spouts, 275.—on an extraordinary appearance at sea, 303.

Buckland, Professor, on the structure of the Alps, 224.

C

Cambridge Philosophical Society, account of the proceedings of the, from March 5. to May 22. 1821, 211.—office-bearers of, 215.

Campbell, Rev. Mr, his second journey in Africa, 403.

Caoutchouc, on the tree which produces it, 406.

Carbeth, mean temperature of, from 1817 to 1820, 394.—quantity of rain that fell at, from 1815 to 1820, 395.

Cecil, Rev. W. on a regulator for equalizing the velocity of machinery, 215.

Chacal, 271.

Chick-pea, 366.

Chimpanzee, 269.

Christie, Mr S. H. on magnetic attractions, 289.

Chronometers, on the effects of magnetism upon, 220, 383.—on the difference between the land and sea rates of, 378.

Clarke, Rev. Dr E. D. on the crystallisation of water, 211.—on aragonite, ib.

Climate of Southern Africa described, 279.

Cold, effects of, upon ice, 405.

Colladon, Dr, on a descent in the diving-bell, 8.

Columns of light observed at Melville Island, 202.

Comet of 1819, on the phases of, 387.—on its supposed transit over the sun, 216.

Configliachi, M. on the Proteus anguinus, 84.

Congo, observations on, 45, 50, 268.

Copernicus, notice respecting, with a fac-simile of one of his letters, 63.

Copper, phosphate of, from the Rhine, analysis of the, 211.—mica, 350.—sulphuret of, 344.

Coral ornaments, on the discoloration of, and the method of preventing it, 131.

Cox, Captain Hiram, on the naphtha wells at Rangoon, 26.

Crocodiles in the Congo, 273.

Cron, Mr G. on the singular treatment of a queen bee, 65.

Crystallography, metallurgic, observations on, by Professor Haussmann, 155.—metallic crystallisations, 157.—iron, ib.—copper, 161.—aurichalcum, 162.—graphite, 163.—sulphuret of copper, 344.—sulphureous lead, 345.—sulphuret of antimony, ib.—oxide of zinc, 346.—copper-mica, 347.—crystalline vitreous scoriæ, 348.—arsenic acid, 350.

Cumming, Rev. J. on the connexion between galvanism and magnetism, 212.—on the application of magnetism as a measure of electricity, 214.

D

Daniell, Mr, his new platinum pyrometer described, 397.—results obtained with it, 398.

Davis' Straits, narrative of a voyage to, in 1820, 309.
Davy, Dr, his analysis of the vertebræ of the Orkney animal, 227.—on the leech of Ceylon, 406.
Delambre, M. le Chev. on a passage in Pappus, 15.
Disko Island in Greenland, 313.
Diving-bell, account of a descent in the, 8.—construction of it, 9.—signals used in it, 12.
Dolichos, or French bean, 365.
Drift-wood accumulated in the Achafalaya, 402.

E

Earth, on the temperature of the interior of the, 29.
Eclipse of 7th September 1820, observed at Gibraltar, 287.
Edmonston, Dr, on some species of the genus Larus, or gull-tribe, 168.
Electrical Fishes, 273.—phenomena observed in Switzerland, 391.
Electro-Magnetism, observations on, 301, 391, 392.
Electro-Magnetic Apparatus of Colonel Offerhaus, 352.
Elk, fossil, discovered in the Isle of Man, 227.
Ervum, 369.
Esquimaux, account of those on the west side of Baffin's Bay, 194.
Euclase, on the optical properties of, 217.

F

Fig-tree, account of a remarkable one, 229.
Fire-Engines, method of fastening the seams of hose for, 123.
Fischer, M. E. G. memoir of the life of Martin Henry Klaproth, 319.
Fisher, Mr, account of his journal of a voyage to the Arctic Reg. 177.
Fishing, method of, in Congo, 272.
Fitishes in Congo and Loango, 46.
Fleming, Dr, on a fungus growing in a solution of succinate of ammonia, 164.
Fowls, on hatching of, from eggs laid after the male bird's death, 355.
Fraser, Mr J. B. on a method of propelling steam-boats without wheels, 116.
Frogs in Congo, 274.
Fruits, Leguminous, on the ancient history of, 357.
Fyfe, Dr, on the sulphate of nickel and copper, 208.—on the action of water upon magnesia, 305.

G

Galvanism and *Magnetism* on their connexion, 212.
Galvano-Magnetic Condenser described, 113.
Gas, on that produced from coal and oil, 223.
Gas-meter, account of Mr Malam's improved one, 129.
German Ocean, on the temperature of the, 220.
Gibraltar Bay, on the temperature of, 288.
Glaze for porcelain, account of an improved one, 127.
Graaf Reynet, on the climate of, 279.
Guebres, on the natural fire-temples of the, 21.
Gull-tribe, on the natural history of some species of the, 188.

H

Haenle, M. on the manufacture of Prussian blue from animal empyreumatic oil, 131.
Halos seen in the Arctic Regions, 204.
Hamilton, Dr Francis, on a map of the country south of Ava, 75.
Harris, list of birds found in, 257.

XUM

Hatching of fowls, observations on the, 355.
Haussmann, Professor, on metallurgic crystallography, 155, 344.
Helix Carychium of Gmelin, 228.
Henry, Dr, on coal and oil gas, 223.
Herschel, Mr J. F. on a peculiarity in the extraordinary refraction of certain varieties of apophyllite, 213.—on certain remarkable deviations from Newton's scale, in the tints produced by doubly refracting crystals, 334.
Hibbert, Dr, on the tides in the Pentland Frith, 55.
Hill, Mr J, on a new stain for wood, and a yellow dye for cloth, 128.
Himalaya Mountains, on the altitude of the, 407.
Hippopotamus, 271.
Hose of fire-engines, method of fastening the seams of, and connecting together two or more lengths, 123.
Howard, Dr, on heat in the rays of the moon, 216.
Howth, method of clearing the harbour at, 13.
Humboldt on isothermal lines, and the distribution of heat, 28.
Hyposulphate of Lime, on the optical properties of, 338.

I, J

Ice, effects of cold upon, 405.
Impediments of speech, 409.
Insects, on the geographical distribution of, 370.
Instrument, account of one for measuring the specific gravity of barley and Scotch bigg, 173.
Iron, on the strength of, 254.
Isothermal Lines, 28, 201.
Jameson, Prof. on the Rocky Mountain sheep of the Americans, 138.
Jameson, Mr William, his narrative of a voyage to Davis' Straits, 309.
Jameson, Rev. A. on the hatching of fowls from eggs laid after the death of the male bird, 355.

K

Keith, Dr G. S. on the specific gravity of barley and Scotch bigg, 173.
Klaproth, Martin Henry, memoir of the life of, 319.
Knox, Dr R. on the climate of Southern Africa, 279.—on the temperature of the Northern Atlantic Ocean, 283.

L

Larus, on some species of the genus, 168.
Lathyrus sativus, 367.
Latreille on the geographical distribution of insects, 370.
Lead, sheet, on the Chinese method of making it, 127.
Lead, sulphureous, 345.
Leadhills, on the mean temperature of, 219.—on the quantity of rain which fell at, from 1813 to 1820, 220.
Lecount, Mr, his observations on magnetic attractions, 295.
Leech, account of one in Ceylon, 406.
Leguminous Fruits, on the ancient history of, 357.
Lepidolite, on the optical structure of, 5.
Leucite, on the optical properties of, 218.
Link, M. on the ancient history of leguminous fruits, 357.
Linnet, on the instinctive attachment of the, to its brood, 228.
Livingstone, Mr, on a Chinese lusus naturæ, 132.
Livingstone, Mr A. on the solar eclipse of 7th September 1820, as observed at Gibraltar, 287.—on the temperature of the w ter in Gibraltar Bay, 288.

Lizard, on the geology of the, 212.
Loango, observations on, 45, 268.
Low, Rev. G. on the tides in the Pentland Frith, 55.
Lungs, on an apparatus for restoring the action of the, 53.
Lunn, Rev. F. his analysis of native phosphate of copper from the Rhine, 211.
Lupin, 366.
Lusus Naturæ, account of one in China, 132.

M

Macaire, M. on the phosphorescence of the Lampyris noctiluca and splendidula, 389.
MacCulloch, Dr, on the phosphorescence of marine animals, 388.
Macgillivray, Mr, on the birds found in the district of Harris, 257.
Machinery, on a regulator to equalize the velocity of, 215.
Madrid, New, eruption of carbonised wood at, 404.
Magnetic Attraction, observations on, 289.
Magnetical Observations made during the late voyage to the Arctic Regions, 197.
Magnetic Observations, history of those made at Zwanenburg, 137.—observations in Melville Island and Lancaster Sound, 197.—masses, on the effect of position on them, 221.—attractions, Mr Barlow's essay on, 261.
Magnetism, on its connection with galvanism, 212.—on the application of it as a measure of electricity, 214.—on the effects of, on chronometers, 220, 383.
Magnesia, on the action of water upon it, 305.
Malam, Mr John, on an improved gas meter, 129.
Malemba, account of, 47.
Mangle, account of a Chinese one, 73.
Map of the country south of Ava described, 75.
Maxwell, Mr, on the countries of Congo and Loango, 45, 268.
Mechanical inventions, history of, 113.
Melville Island, account of, 184.
Mesotypes, on the optical structure of the, 7.
Metallurgic Crystallography, 155, 344.
Meteorological Observations made during the late voyage to the Arctic Regions, 199.—in Southern Africa, 279.—at Carbeth, 394.
Meteor, gelatinous, observed in America, 395.
Mica, on the optical structure of, 5.
Milligan, Mr Edward, on the sword-fish cast ashore at Kirkbean, 399.
Mills, on the method of keeping off the back-water from them, 222.
Milne, Mr James, on the manufacture of block-tin pipes, 120.
Minerals, on the connection between their optical structure and chemical composition, 1.
Mineralogy, on a new system of, founded ou the optical and physical characters of minerals, 230.
Missisippi, expedition to explore the sources of the, 232.
Moll, M. G. on the magnetic observations made at Sparendam, 137.
Monkeys in Congo, 268.
Moon, heat detected in the rays of the, 216.—volcanoes in the, ib.
Mudge, Lieut. on the difference between the land and sea rates of chronometers, 378.—on the magnetic action of St Mayo and Great Salvage Islands, 381.

XUM

Murio-sulphate of magnesia and iron, its optical structure, 2.—its chemical composition, according to Mr Phillips, 3.
Murray, Mr John, account of his improved apparatus for restoring the action of the lungs, 53.—his new shower-bath, 122.—his method of communicating with the shore in shipwrecks, 124.—on the solution of phosphorus in sulphuret of carbon, 222.

N

Naphtha, springs of Badku, 22.—of Pegu, 26.
Nepaul, on the plants of, 230.
Nickel, sulphate of, on the optical structure of the, 6.—on the chemical composition of the, 7.
Nightingale, notices relating to the, 225.
Nitrate of Strontian, on the optical structure of, 4.
Nitrite of Lead, optical structure of, 7.
Nostoch communis, notice respecting, 408.

O

Obliquity of the ecliptic, as deduced from Pappus, 15.—on the diminution of the, 42.—tables for finding the true obliquity, 43, 44.
Occultations of the Pleiades in 1820 and 1821, 71.—of Jupiter by the Moon, 73.
Offerhaus, Colonel, his electro-magnetic apparatus, 352.

P

Pappus, on a passage in the mathematical collections of, 15.
Paralytic affection cured by lightning, 407.
Paraselenæ seen in the Arctic Regions, 204.
Parhelia seen in the Arctic Regions, 205.
Parry, Captain, abstract of his journal of a voyage to discover the North-west Passage, in 1819—20, 177.
Patents, list of, in Scotland, since 23d January 1821, 235, 411.
Pegu, naphtha wells in, 26.
Pendulum, account of experiments with the, at Winter Harbour, 207.
Perkins, Mr, on a method of fastening the seams of hose for fire-engines, &c. 123.
Phillips, Mr R. on the chemical composition of the murio-sulphate of magnesia and iron, 3.
Phormium tenax, or New Zealand flax, 341.
Phosphate of Copper, native, from the Rhine, analysis of the, 211.
Phosphorescence of marine animals, 388.—of the Lampyris noctiluca and splendidula, 389.
Phosphorus, on the solution of, in sulphuret of carbon, 222.
Plant, account of a remarkable one of the order Fungi, found growing in a solution of succinate of ammonia, 164.—which dissolves in water, 408.
Poggendorff's galvano-magnetic condenser, 113.
Poongo, account of the, 268.
Proceedings of the Royal Society of Edinburgh, 385.
Processes in the useful arts, history of the, 113.
Proteus anguinus, on the skeleton of the, 84.—on the movements of the, in water and land, 87.—on the organs of digestion of, 92.—on the alimentary canal of, 93.—on the organs of circulation of, 95.—on the organs of respiration of, 98.—on the organs of generation of, 100.—on the organs of secretion of, 101.—on the organs of sense of, 103.

Prussian Blue, manufactured from animal empyreumatic oil, 131.
Pyrometer for high temperatures, by Mr Daniell, 397.—results obtained with it, 398.

R

Rangoon, account of, 81.
Rattlesnake, on the bones of the, 227.—account of the habits of one, 401.
Regulator, account of one for equalising the velocity of machinery, 215.
Rewards for discoveries in the Arctic Regions, 403.
Robison, Mr John, on a new method of consuming smoke, 233.
Rocket apparatus for saving lives in cases of shipwreck, 124. *Note.*
Rose, Mr John, on an improved glaze for porcelain, 127.
Rousts or currents of tide in the Pentland Frith described, 55.
Royal Society of Edinburgh, proceedings of the, 385.
Rumker, M. on astronomical observations made on the Continent, 71.
Rusconi, M. on the proteus anguinus, 84.
Rust, on the prevention of, 233.

S

Sabine, Captain, his exertions during the Arctic Expedition, 196.—his experiments on the pendulum, 207.
Salvage Island, on the magnetic action of, 381.
School of arts in Edinburgh, 234.
Sedgwick, Reverend A. on the geology of the Lizard, 212.
Sheep, on the Rocky Mountain ones of the Americans, 138.
Shipwrecks, on a method of forming a communication with the shore in cases of, 124.
Showerbath, a new one described, 122.
Sirena Lacertina, 105. *Note.*
Smoke, on a new method of consuming, 233.
Snow and Hail, singular appearance of, 396.
Snow blindness described, 191.
Sonia, account of, 51.
Sound, on the velocity of, 390.—on the propagation of, in elastic fluids, 390.
Sounds, on the audibility of, in cold climates, 207.—excited in hydrogen gas, 211.
South Britain, New, on the latitude and longitude of places in, 233.
Specific Grav. of barley and Scotch bigg, method of measuring it, 173.
Speech, impediments of, 409.
Spikenard of the ancients, 230.
Spring, eruption of one near Ripon, 406.
Springs, on the temperature of, 29.
Stain for wood, account of a new one, 128.
Steam-Boats, on a method of propelling them without wheels, 116.
Steam Boiler, account of the explosion of one at Lochrin, 147.
Stevenson, Mr R. on the explosion of a steam-boiler at Lochrin distillery, 147.—on the history and construction of suspension bridges, 237.—his new chain bridge, 252.—on the strength of iron, 254.
Succinate of Ammonia, on a fungus found growing in a solution of, 164.
Sulphate of nickel and copper, Dr Fyfe's analysis of the, 208.
Sulphuret of carbon, on the solution of phosphorus in it, 222.
Swona, island of, described, 59.
Sword fish cast ashore at Kirkbean, 399.

XUM

T

Table of the temperature of springs, 29.—of the distribution of heat over the Globe, 32.—of the variation of the needle at Melville Island, 197.—of the annual temperature of Melville Island, 200.—of the land and sea rates of chronometers, 379, 380.—of the weather at Graaf Reynet, 279.
Talc, on the optical structure of, 5.
Tapir of Malacca, 227.
Taunu, on the kingdom of, 79.
Temperature of the Globe, 28.—of springs, 29.—of various places on the earth's surface, 32.—mean of Leadhills for ten years, 219.—mean of the German Ocean, 220.—mean at Carbeth, from 1817,-1820, 394.—of Melville Island, 201.—difference between that of sunshine and the shade, 202.
Testudo, on the anatomy of the, 228.
Tides in the Pentland Frith described, 55.—on the state of the, in Winter Harbour, 206.
Topaz, on the distribution of the colouring matter in the, 217.
Trengrouse, Mr, his rocket apparatus for saving lives in cases of shipwreck, 124. *Note.*
Trigonella Fœnum Græcum, 369.
Turtle in the Congo, 273.

U, V

Ure, Dr, on the composition of acetate of copper, 4.—his chemical dictionary, 224.
Velocipede, account of a water one, 221.
Venus, notice respecting, 388.
Vidal, Lieut. on the difference between the land and sea rates of chronometers, 378.
Violin and *violincello*, on a new method of playing upon both at the same time, 231.
Virey, M. on the discoloration of coral ornaments, and the method of preventing it, 131.
Volcano, account of a new one near Leiria, in Portugal, 406.—in the moon, 216.

W

Waddel, Mr Andrew, on a Chinese mangle, 73.—on the Chinese method of making sheet-lead, 127.
Waddel, Mr Alexander, on a new optical instrument, 143.
Water, on the crystallisation of, 211.—on the action of, upon magnesia and its carbonate, by Dr Fyfe, 305.
Water-spouts, description of, 39.—observed at sea, in voyages to and from India, 275.
Weights and *Measures*, report of the commissioners for, 408.
Whale Song, account of it, 181.
Winds, state of the, in Winter Harbour, 206.
Winter Harbour described, 188.
Wood, carbonised, eruption of, at New Madrid, 404.
Woods, on the increase of the weight of different kinds of, when immersed in water, 206.

Y

Yelin, M. on electro-magnetism, 391.
Yellow Dye for cloth, account of a new one, 128.
Yule, Dr, on the Phormium tenax, or New Zealand flax, 341.

XUM